CLAIMS

1. User interface apparatus for enabling a user to communicate with a processor-controlled machine, the apparatus comprising user interface defining means comprising:

a communicator for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;

a receiver for receiving device description data provided by the processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

a user interface element accessor for accessing user interface element data defining user interface elements that can be used to form a user interface;

an associator for associating the functional capabilities in the received device description data with user interface elements defined by the user interface element data; and

a generator for generating user interface data defining a user interface using the user interface element data for the user interface elements associated

with the functional capabilities defined by the device description data.

2. User interface apparatus for enabling a user to communicate with a processor-controlled machine to cause that processor-controlled machine to carry out a function, the apparatus comprising user interface defining means comprising:

a communicator for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;

a receiver for receiving device description data provided by the processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

a user interface element accessor means for accessing user interface element data defining user interface elements that can be used to form a user interface;

an associator for associating functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one functional capability is

associated with at least two possible alternative user interface elements;

a preference for provider providing preference data regarding user interface element preferences;

a user interface element determiner for determining using the user interface element option data and the preference data the user interface elements to be used to represent the functional capabilities of processor-controlled machine; and

a generator for generating user interface data defining a user interface using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

3. User interface apparatus according to claim 2, wherein the preference provider is operable to provide preference data defining preferences of at least one of the user of the user interface apparatus and the supplier of the user interface apparatus.

4. User interface apparatus according to claim 2, wherein the preference provider is operable to provide preference data defining at least one of preferences for different types of user interface elements; preferences

for the style of presentation of user interface elements and preferences for layout of user interface elements.

5. User interface apparatus according to claim 2, wherein the preference provider is operable to provide preference data defining at least one of preferences for different types of user interface elements such as button, menu or combo box type user interface elements and user interface element style preferences such as at least one of colour, font, font size to be used for user interface elements.

6. User interface apparatus according to claim 1, wherein the user interface comprises a graphical user interface and the apparatus further comprises a display for displaying the user interface to a user.

7. User interface apparatus according to claim 1, comprising a user interface data supplier for supplying generated user interface data to a user interface device.

8. User interface apparatus according to claim 1, wherein the communicator is operable to communicate with a number of different processor-controlled machines and the receiver is operable to receive device description

data provided by any of said number of different processor-controlled machines and defining the functional capabilities of that processor-controlled machine.

9. User interface apparatus according to claim 1, wherein the communicator is operable to communicate directly with a processor-controlled machine.

10. User interface apparatus according to claim 1, wherein the communicator is operable to communicate with a processor-controlled machine via a network to which the processor-controlled machine is coupled.

11. User interface apparatus according to claim 1, wherein the receiver is operable to receive device description data via the communicating means.

12. User interface apparatus according to claim 1, wherein the receiver is operable to receive device description data directly from a processor-controlled machine.

13. User interface apparatus according to claim 1, wherein the receiver is operable to access device description data using a look-up service provided by a

network to which the processor-controlled machine is coupled.

14. User interface apparatus according to claim 1, wherein the user interface definer is provided by a processor and associated memory storing a user interface application implementable by the processor.

15. User interface apparatus according to claim 14, wherein the user interface application comprises a plurality of separate program modules or fitters.

16. User interface apparatus according to claim 15, wherein the communicator, receiver, user interface element accessor, associator, and generator comprise respective different program modules.

17. User interface apparatus according to claim 15 when dependent on claim 2, wherein the communicator, receiver, user interface element accessor, associator, preference provider, user interface element determiner and generator comprise respective different program modules.

18. A processor controlled machine for use with a user interface apparatus in accordance with claim 1, having

a functioner for carrying out at least one function; a machine communicator for communicating with the user interface device to enable the user of the user interface to cause the processor-controlled machine to carry out a function; and a device description data provider for providing device description data defining the functional capabilities of the processor-controlled machine.

19. A processor controlled machine according to claim 18, wherein the functioner is operable to carry out a printing function.

20. A processor controlled machine according to claim 18, wherein the functioner is operable to carry out a facsimile communication function.

21. A processor controlled machine according to claim 18, wherein the functioner is operable to carry out a copying function.

22. A processor controlled machine according to claim 18, wherein the functioner is operable to carry out a scanning function.

23. A system comprising a user interface apparatus in accordance with claim 1 and at least one processor-controlled machine in accordance with claim 18.

24. A system comprising a user interface apparatus in accordance with claim 1 and a plurality of processor-controlled machines in accordance with claim 18 adapted to communicate over a network.

25. A system comprising a user interface apparatus in accordance with claim 1, a plurality of processor-controlled machines in accordance with claim 18 couplable to a network and a network look-up service adapted to stored data relating to the processor controlled machines.

26. A system according to claim 24, further comprising the network.

27. A system comprising: a plurality of processor-controlled machines each having a functioner for carrying out at least one function, a network communicator for communicating with a network, and a device description data provider for providing device description data defining the functional capabilities of the processor-

controlled machine; and a user interface apparatus for enabling a user to communicate with any one of said processor-controlled machines when that processor-controlled machine is coupled to the network to cause that processor-controlled machine to carry out a function, the user interface apparatus comprising a user interface display for displaying a user interface to the user and a user interface definer comprising:

a network communicator for establishing communication with the network to enable the user of the user interface to cause one of the processor-controlled machines coupled to the network to carry out a function;

a receiver for receiving, when the network communicator has established communication with the network, device description data provided by the one processor-controlled machine directly from the and defining the functional capabilities of that processor-controlled machine;

a user interface element accessor for accessing user interface element data defining user interface elements that can be used to form a user interface;

an associator for associating the functional capabilities in the received device description data with user interface elements defined by the user interface element data; and

a generator for generating user interface data defining a user interface for display on the display using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

28. A system comprising: a plurality of processor-controlled machines each having a functioner for carrying out at least one function, a network communicator for communicating with a network, and a device description data provider for providing device description data defining the functional capabilities of the processor-controlled machine; and a user interface apparatus for enabling a user to communicate with any one of said processor-controlled machines when that processor-controlled machine is coupled to the network to cause that processor-controlled machine to carry out a function, the user interface apparatus comprising a display for displaying a user interface to the user and a user interface definer comprising:

a network communicator for establishing communication with the network to enable the user of the user interface to cause one of the processor-controlled machines coupled to the network to carry out a function;

a receiver for receiving, when the network communicating means has established communication with the network, device description data provided by the one processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

a user interface element accessor for accessing user interface element data defining user interface elements that can be used to form a user interface;

an associator for associating functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one functional capability is associated with at least two possible alternative user interface elements;

a preference provider for providing preference data regarding user interface element preferences;

a user interface element determiner for determining using the user interface element option data and the preference data the user interface elements to be used to represent the functional capabilities of processor-controlled machine;

a generator for generating user interface data defining a user interface for display on the display using the user interface element data for the user

interface elements associated with the functional capabilities defined by the device description data.

29. A system according to claim 27, wherein the user interface display is provided by a separate user interface device and the user interface apparatus has a user interface data supplier for supplying the user interface data to the user interface device via the network.

30. A system according to claim 27, further comprising a look-up service couplable to the network and operable to provide the user interface apparatus, when communication has been established by the network communicator, with data relating to or identifying the device description data for said one processor-controlled machine.

31. A method of providing a user interface device with a user interface to enable a user to use the user interface device to cause a processor-controlled machine to carry out a function, the method comprising processor means carrying out the steps of :

communicating with the processor-controlled machine to enable a user of the user interface device to cause the processor-controlled machine to carry out a function;

receiving device description data defining the functional capabilities of that processor-controlled machine;

accessing user interface element data defining user interface elements that can be used to form a user interface;

associating the functional capabilities in the received device description data with user interface elements defined by the user interface element data; and

generating user interface data defining a user interface using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

32. A method of providing a user interface device with a user interface to enable a user to use the user interface device to cause a processor-controlled machine to carry out a function, the method comprising processor means carrying out the steps of :

communicating with the processor-controlled machine to enable a user of the user interface device to cause the processor-controlled machine to carry out a function;

receiving device description data provided by the processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

accessing user interface element data defining user interface elements that can be used to form a user interface;

associating functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one functional capability is associated with at least two possible alternative user interface elements;

accessing preferences data regarding user interface element preferences;

determining using the user interface element option data and the preference data the user interface elements to be used to represent the functional capabilities of processor-controlled machine; and

generating user interface data defining a user interface for display on a display using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

33. A method according to claim 32, wherein the accessing preferences data step accesses preference data defining preferences of at least one of the user of the user interface device and the supplier of the user interface device.

34. A method according to claim 32, wherein the accessing preferences data step accesses preference data defining at least one of preferences for different types of user interface elements; preferences for the style of presentation of user interface elements and preferences for layout of user interface elements.

35. A method according to claim 32, wherein the accessing preferences data step accesses preference data defining at least one of preferences for different types of user interface elements such as button, menu or combo box type user interface elements and user element style preferences such as at least one of colour, font, font size to be used for user interface elements.

36. A method according to claims 31, further comprising displaying the user interface on the display.

37. A method according to claim 31, further comprising supplying the user interface data to a user interface device having a display for displaying the user interface.

38. A method according to claim 31, wherein in the communicating step the processor means communicates with one of a number of different processor-controlled machines and in the receiving step receives device description data provided by said one of said number of different processor-controlled machines processor-controlled machine and defining the functional capabilities of that processor-controlled machine.

39. A method according to claim 31, wherein the communicating step comprises direct communication with the processor-controlled machine.

40. A method according to claim 31, wherein the communicating step comprises communicating with the processor-controlled machine via a network to which the processor-controlled machine is coupled.

41. A method according to claim 31, wherein the receiving step comprises receiving device description

data via the communication path used in the communicating step.

42. A method according to claim 31, wherein the receiving step comprises receiving device description data directly from the processor-controlled machine.

43. A method according to claim 31, wherein the receiving step comprises accessing device description data using a look-up service provided by a network to which the processor-controlled machine is coupled.

44. A method according to claim 31, wherein the processor means carries out the claimed steps by implementing a user interface application stored in an associated memory.

45. A method according to claim 44, wherein the user interface application comprises a plurality of separate program modules or fitters.

46. A method according to claim 45, wherein the processor means carries out the communicating step, receiving step, accessing user interface element data step, associating step, and generating step by

implementing respective different ones of the program modules.

47. A method according to claim 45 when dependent on claim 32, wherein the processor means carries out the communicating step, receiving step, accessing user interface element data step, associating step, accessing preference data step, user interface element determining step and generating step by implementing respective different ones of the program modules.

48. A method of providing a user interface device with a user interface to enable a user to use the user interface device to cause one of a plurality of processor-controlled machines coupled to a network to carry out a function, the method comprising processor means carrying out the steps of:

establishing communication with the network to enable the user of the user interface to cause one of the processor-controlled machines coupled to the network to carry out a function;

receiving, when communication has been established with the network, device description data provided by the one processor-controlled machine and defining the

functional capabilities of that processor-controlled machine;

accessing user interface element data defining user interface elements that can be used to form a user interface;

associating the functional capabilities in the received device description data with user interface elements defined by the user interface element data; and

generating user interface data defining a user interface using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

49. A method of providing a user interface device with a user interface to enable a user to use the user interface device to cause one of a plurality of processor-controlled machines coupled to a network to carry out a function, the method comprising processor means carrying out the steps of:

establishing communication with the network to enable the user of the user interface to cause one of the processor-controlled machines coupled to the network to carry out a function;

receiving, when communication has been established with the network, device description data provided by

the one processor-controlled machine defining the functional capabilities of that processor-controlled machine;

accessing user interface element data defining user interface elements that can be used to form a user interface;

associating functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one functional capability is associated with at least two possible alternative user interface elements;

accessing preference data regarding user interface element preferences;

determining using the user interface element option data and the preference data the user interface elements to be used to represent the functional capabilities of processor-controlled machine; and

generating user interface data defining a user interface for display on a display of the user interface device using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

50. A method according to claim 48, wherein the processor means comprises part of the user interface device.

51. A method according to claim 48, further comprising, when communication has been established with the network, providing the user interface device with data relating to or identifying the device description data for said one processor-controlled machine from a look-up service coupled to the network.

52. A user interface apparatus according to claim 1, further comprising:

user settable data handling parameter defining means having at least one parameter settable by a user; and

data handling means for handling received data in accordance with at least one data handling parameter set by the user.

53. A user interface apparatus according to claim 52, wherein the data handling means is operable to divert an incoming message so that the user is not made aware of the message.

54. A user interface apparatus according to claim 52, wherein the data handling means is operable to send received data to a location determined by at least one parameter set by the user.

55. A method according to claim 31, further comprising the processor means carrying out the steps of:

enabling a user to set at least one data handling parameter;

receiving data from a processor controlled machine; and

handling the received data in accordance with the at least one parameter set by the user.

56. A method according to claim 55, wherein the data handling step diverts an incoming message so that the user is not made aware of the message.

57. A user interface apparatus according to claim 55, wherein the data handling step sends received data of a type or identify defined by a user set parameter to a location determined by at least one parameter set by the user.

58. A user interface apparatus according to claim 1, further comprising:

user interface modifying means for modifying the user interface in response to data identifying the availability of another processor-controlled machine.

59. A user interface apparatus according to claim 58, wherein the user interface modifying means is operable to make available a copy or print user interface function in response to data identifying the availability of a printer.

60. A carrier carrying processor implementable instructions for causing a processor to carry out a method in accordance with claim 31.

61. A storage medium comprising processor implementable instructions for causing a processor to carry out a method in accordance with claim 31.

62. User interface apparatus for enabling a user to communicate with a processor-controlled machine, the apparatus comprising user interface defining means comprising:

communicating means for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;

receiving means for receiving device description data provided by the processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

user interface element accessing means for accessing user interface element data defining user interface elements that can be used to form a user interface;

associating means for associating the functional capabilities in the received device description data with user interface elements defined by the user interface element data; and

generating means for generating user interface data defining a user interface using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.

63. User interface apparatus for enabling a user to communicate with a processor-controlled machine to cause that processor-controlled machine to carry out a

function, the apparatus comprising user interface defining means comprising:

communicating means for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;

receiving means for receiving device description data provided by the processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

user interface element accessing means for accessing user interface element data defining user interface elements that can be used to form a user interface;

associating means for associating functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one functional capability is associated with at least two possible alternative user interface elements;

preference means for providing preference data regarding user interface element preferences;

user interface element determining means for determining using the user interface element option data and the preference data the user interface elements to

be used to represent the functional capabilities of processor-controlled machine; and

generating means for generating user interface data defining a user interface using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.